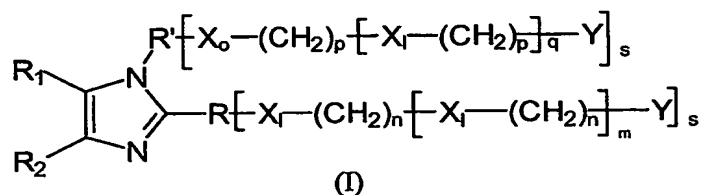
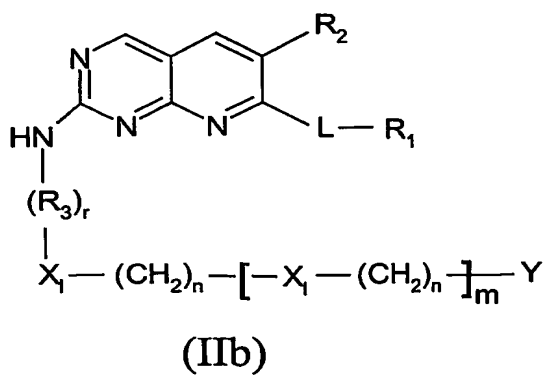
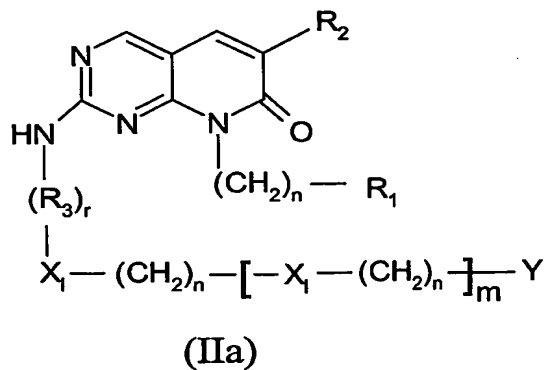


Claims

1. A medium for separating at least one ATP binding protein from a pool of proteins, the medium comprising at least one compound of the general formula I



formulas IIa and IIb (compound class B)



wherein

each L is independently selected from $-\text{NH}-\text{CO}-\text{NH}-$, $-\text{NH}-\text{SO}_2-$, or $-\text{NH}-\text{CS}-\text{NH}$,

each X is independently selected from $-\text{CH}_2-$, $-\text{NH}-$, $-\text{O}-$, $-\text{S}-$,



each Y is independently selected from $-\text{NH}_2$, $-\text{NHR}_1$, $-\text{OH}$, $-\text{SH}$ or $-\text{SO}(\text{CH}_3)$,

each l is independently selected to be 0 or 1,

each m is independently selected to be an integer from 0 to 10,

each n is independently selected to be an integer from 0 to 10,

each o is independently selected to be 0 or 1,

each p is independently selected to be an integer from 0 to 10,

each q is independently selected to be an integer from 0 to 10,

each r is independently selected to be an integer from 0 to 2,

R and R' are independently of each other $-\text{H}$,



and each s is independently selected to be 0 or 1, with the proviso that $s = 0$ if R or R' is H,

each R_1 is independently selected from $-\text{H}$, $\text{C}_1 - \text{C}_6$ alkyl (linear or branched),

bicyclo[3.3.1]heptanyl, or an unsubstituted or partially or fully substituted $\text{C}_3 - \text{C}_8$

cycloalkyl, aryl, pyridinyl or pyrimidinyl, substituted by $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{CN}$,

$-\text{OH}$, $-\text{SH}$, $-\text{NH}_2$, $-\text{NHCHR}_2\text{R}_2$, $\text{C}_1 - \text{C}_6$ -alkoxy, $\text{C}_1 - \text{C}_6$ -alkylthio, $\text{C}_1 - \text{C}_6$ -

haloalkyloxy, partially or fully halogenated $\text{C}_1 - \text{C}_6$ alkyl and/or $-\text{X}_1(\text{CH}_2)_n\text{Y}$ ($\text{C}_1 -$

C_6 -alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, $\text{C}_1 -$

C_6 -alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, $\text{C}_1 - \text{C}_6$ -haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is

linear or branched, $\text{C}_1 - \text{C}_6$ -haloalkyl denotes an halogen-alkyl group wherein the

alkyl group is linear or branched),

each R_2 is independently selected from $-\text{H}$, $\text{C}_1 - \text{C}_6$ alkyl (linear or branched), an

unsubstituted or partially or fully substituted aryl, substituted by $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{CN}$,

$-\text{OH}$, $-\text{SH}$, $-\text{NH}_2$, $\text{C}_1 - \text{C}_6$ alkyl (linear or branched), $\text{C}_1 - \text{C}_6$ -alkoxy, $\text{C}_1 -$

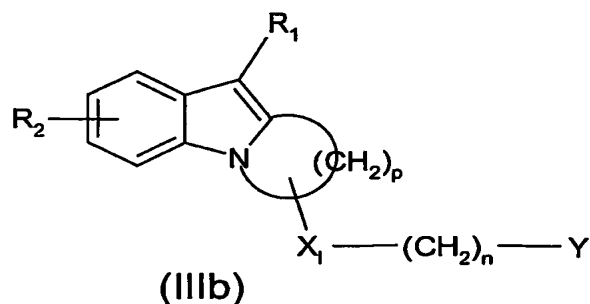
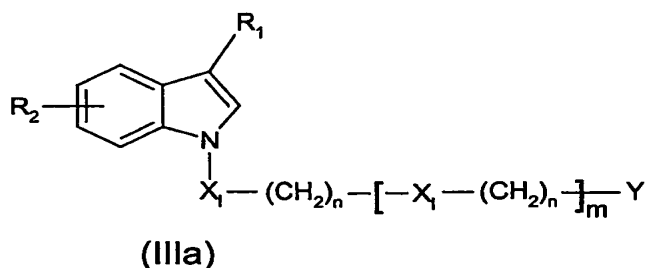
C_6 -alkylthio, $\text{C}_1 - \text{C}_6$ -haloalkyloxy, and/or $\text{C}_1 - \text{C}_6$ partially or fully halogenated

alkyl ($\text{C}_1 - \text{C}_6$ -alkoxy denotes an O-alkyl group wherein the alkyl group is linear or

branched, C₁ – C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C₁ – C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁ – C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched), and

each R₃ is independently selected from X, an unsubstituted or partially or fully substituted aryl, pyridinyl or pyrimidinyl, substituted by –F, –Cl, –Br, –I, –CN, –OH, –SH, –NH₂, –NHCHR₁R₁, C₁ – C₆-alkoxy, C₁ – C₆ -alkylthio, C₁ – C₆ -haloalkyloxy, and/or partially or fully halogenated C₁-C₆ alkyl (C₁ – C₆-alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C₁ – C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C₁ – C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁ – C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),

formulas IIIa and IIIb (compound class C)



wherein

each R₁ is independently selected from



each R_3 is independently selected from -indolyl, N- ($C_1 - C_6$ alkyl) -indolyl (alkyl is linear or branched), $-NHR_1'$,

5 $-S-R_1'$, or $-O-R_1'$,

R_1' is -H, $C_1 - C_6$ alkyl (linear or branched) or aryl,

each R_2 is independently selected from -H, -F, -Cl, -Br, -I, -CN, -OH, -SH, -NH₂, $C_1 - C_6$ -alkyl (linear or branched), $C_1 - C_6$ -alkoxy, $C_1 - C_6$ -alkylthio, $C_1 - C_6$ -haloalkyloxy, and/or $C_1 - C_6$ partially or fully halogenated alkyl ($C_1 - C_6$ -alkoxy

10 denotes an O-alkyl group wherein the alkyl group is linear or branched, $C_1 - C_6$ -alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, $C_1 - C_6$ -haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, $C_1 - C_6$ -haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),

15 each X is independently selected from $-CH_2-$, $-NH-$, $-O-$, $-S-$,



each Y is independently selected from $-NH_2$, $-NHR_1$, $-OH$, $-SH$ or $-SO(CH_3)$,

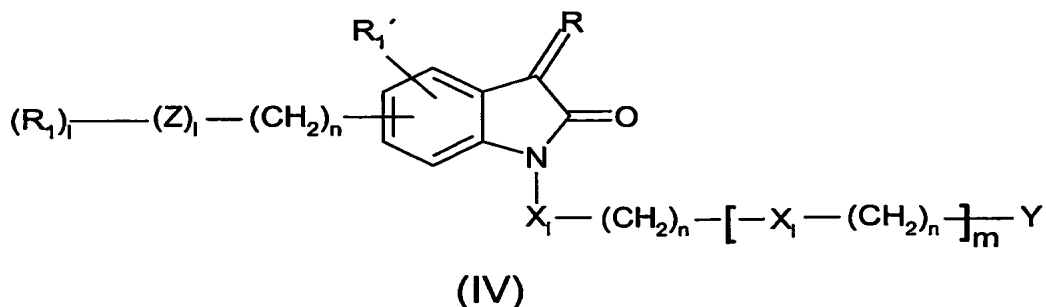
each l is independently selected to be 0 or 1,

m is an integer from 0 to 10,

20 each n is independently selected to be an integer from 0 to 10,

p is an integer from 2 to 6

formula IV (compound class D)



wherein

each X is independently selected from $-\text{CH}_2-$, $-\text{NH}-$, $-\text{O}-$, $-\text{S}-$,



each Y is independently selected from $-\text{NH}_2$, $-\text{NHR}_1$, $-\text{OH}$, $-\text{SH}$ or $-\text{SO}(\text{CH}_3)$,
Z is $-\text{SO}_2-\text{NR}_1\text{R}_1$, $-\text{CO}$, $-\text{O}-\text{CO}-$, $-\text{NH}-\text{CO}$, $-\text{COO}-$, $-\text{CO}-\text{NH}$, $-\text{OCH}_2-$,
 $-\text{SCH}_2-$,

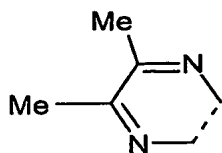
each l is independently selected to be 0 or 1,

m is an integer from 0 to 10,

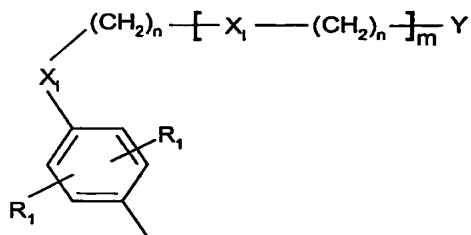
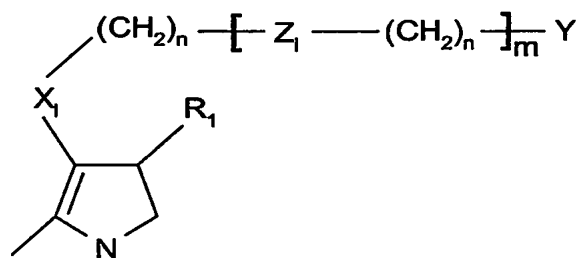
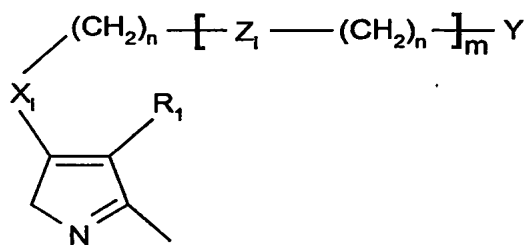
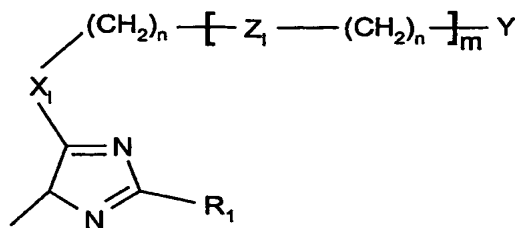
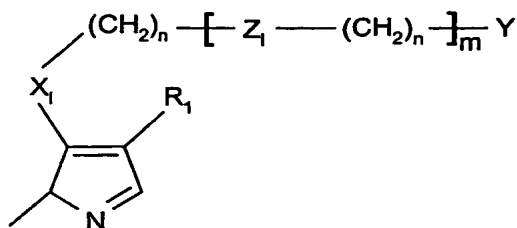
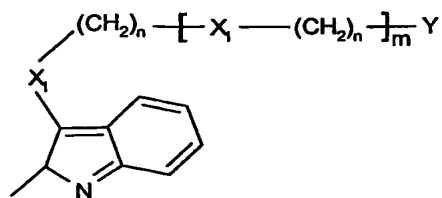
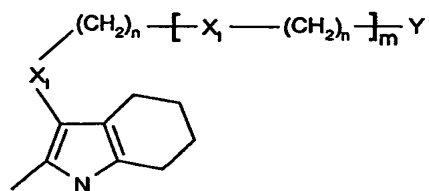
each n is independently selected to be an integer from 0 to 10,

R is $-\text{CR}_1\text{L}$, $-\text{N}-\text{NH}-\text{L}$

each R_1 is independently selected from $-\text{H}$, $\text{C}_1 - \text{C}_6$ alkyl (linear or branched),
unsubstituted or partially or fully substituted aryl, pyridinyl, pyrimidinyl, $\text{C}_3 - \text{C}_8$
cycloalkyl substituted by $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{CN}$, $-\text{OH}$, $-\text{SH}$, NH_2 , $\text{C}_1 - \text{C}_6$ -
alkoxy, $\text{C}_1 - \text{C}_6$ -alkylthio, $\text{C}_1 - \text{C}_6$ -haloalkyloxy, and/or $\text{C}_1 - \text{C}_6$ partially or fully
halogenated alkyl ($\text{C}_1 - \text{C}_6$ -alkoxy denotes an O-alkyl group, $\text{C}_1 - \text{C}_6$ -alkylthio denotes
an S-alkyl group, $\text{C}_1 - \text{C}_6$ -haloalkyloxy denotes an halogen-alkyl-O group, $\text{C}_1 - \text{C}_6$ -
haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or
branched), $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{COOH}$, $-(\text{CH}_2)_n-\text{OH}$, oxazolyl, thiazolyl,
thiophenyl, pyrrolyl, furanyl, imidazolyl, pyrazolyl, pyridinyl, pyrimidinyl,
 R_1' is independently selected from H or R_1 and R_1' may form together the following
substituted ringsystem

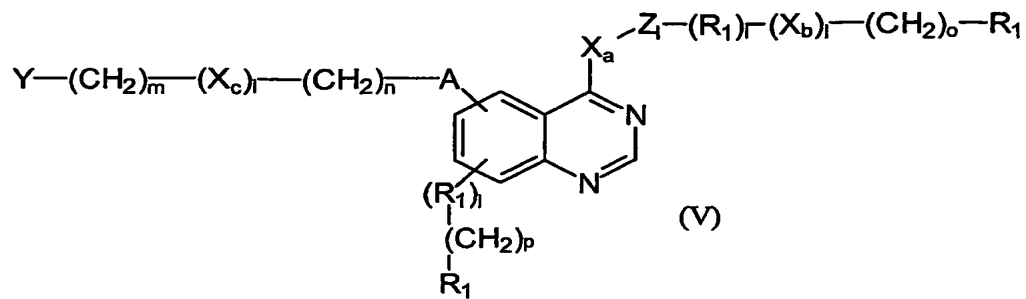


L is

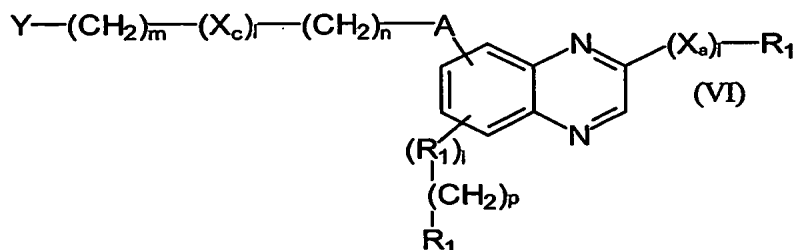


formulas V and VI (compound class E and F)

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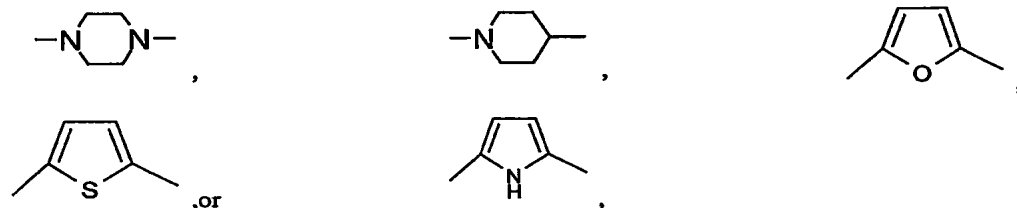


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wherein

A, X_a, X_b, and X_c are independently selected to be Z, -CH₂-, -NH-, -O-, -S-,



each Y is independently $-\text{NH}_2$, $-\text{NHR}_1$, $-\text{OH}$, $-\text{SH}$ or $-\text{SO}(\text{CH}_3)$,

each Z is independently selected from $-\text{SO}_2-\text{NR}_1-$, $-\text{CO}-$, $-\text{O}-\text{CO}-$, $-\text{NH}-\text{CO}-$, $-\text{COO}-$, $-\text{CO}-\text{NH}-$, $-\text{CS}-\text{NH}-$, $-\text{OCH}_2-$, $-\text{SCH}_2-$, or $-\text{NH}-\text{CO}-\text{NH}-$,

each l is independently selected to be 0 or 1,

each m is independently selected to be an integer from 0 to 10,

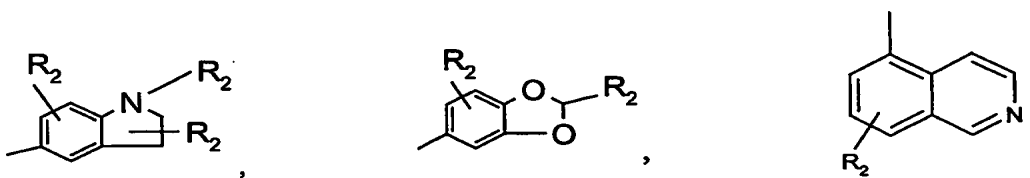
each n is independently selected to be an integer from 0 to 10,

each o is independently selected to be an integer from 0 to 10,

each p is independently selected to be an integer from 0 to 10,

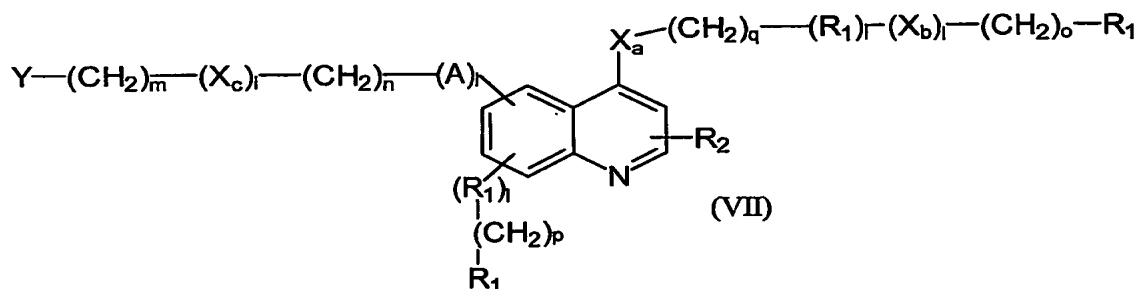
each R₁ is independently selected from -H, -O-, C₁-C₆ alkyl (linear or branched), C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkyloxy, C₁-C₆ partially or fully halogenated alkyl, unsubstituted or partially or fully substituted C₃-C₈ cycloalkyl, an unsubstituted or partially or fully substituted aryl, wherein the cycloalkyl and the aryl are optionally substituted by -F, -Cl, -Br, -I, -CN, -OH, -SH, -NH₂, -CONH₂, C₁-C₆ alkyl (linear or branched), -C≡C-(CH₂)_n-CH₃, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkyloxy, and/or C₁-C₆ partially or fully halogenated alkyl (C₁-C₆-alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C₁-C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C₁-C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein

the alkyl group is linear or branched, C₁ – C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),

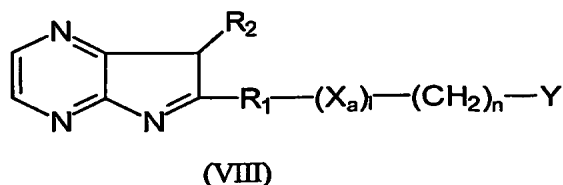


each R₂ is independently selected from –F, –Cl, –Br, –I, –CN, –OH, –SH, NH₂, C₁–C₆ alkyl (linear or branched), C₁ – C₆-alkoxy, C₁ – C₆-alkylthio, C₁ – C₆-haloalkyloxy, partially or fully halogenated C₁-C₆ alkyl (C₁ – C₆-alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C₁ – C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C₁ – C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁ – C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),

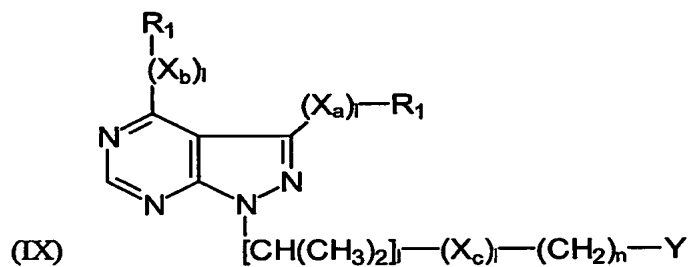
formula VII (compound class G)



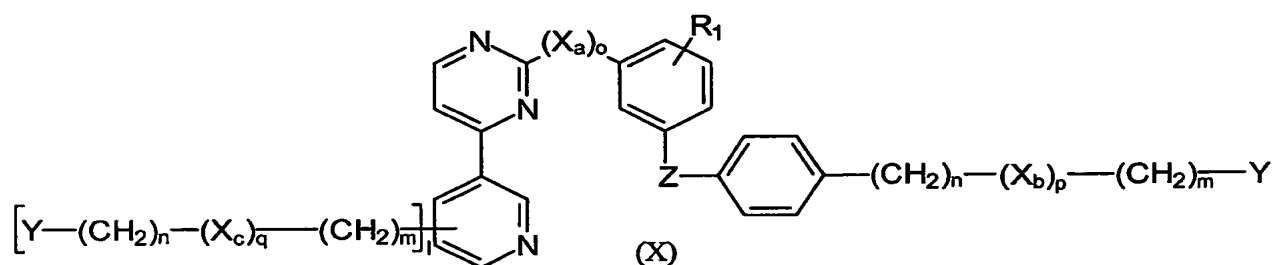
, formula VIII (compound class H)



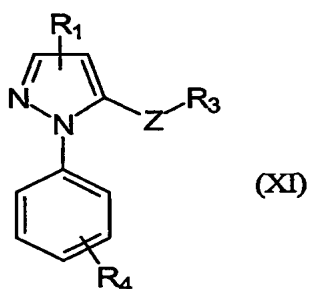
, formula IX (compound class I)



, formula X (compound class J)

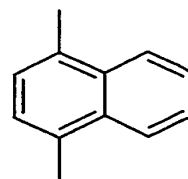
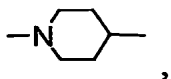
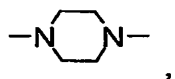


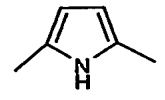
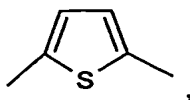
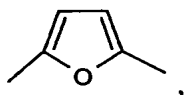
or formula XI (compound class K)



wherein

A, X_a, X_b, and X_c are independently selected from Z, -CH₂-, -NH-, -O-, -S-,





each Y is independently selected from $-H$, $-NH_2$, $-NHR_1$, $-OH$, $-SH$ or $-SO(CH_3)$,

each Z is independently selected from $-SO_2-NR_1-$, $-CO$, $-O-CO-$, $-NH-CO-$, $-COO-$, $-CO-NH-$, $-OCH_2-$, $-SCH_2-$, $-NH-CO-NH-$,

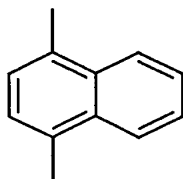
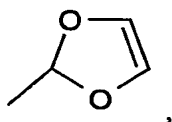
each l is independently selected to be 0 or 1,

each m is independently selected to be an integer from 0 to 10,

each n is an integer independently selected from 0 to 10,

each of o, p, q is an integer independently selected from 0 to 10,

each R_1 is independently selected from $-H$, C_1-C_6 alkyl (linear or branched), C_1-C_6 -alkoxy, C_1-C_6 -alkylthio, C_1-C_6 -haloalkyloxy, C_1-C_6 partially or fully halogenated alkyl, unsubstituted or substituted C_3-C_8 cycloalkyl, an unsubstituted or partially or fully substituted aryl, wherein the cycloalkyl and the aryl are optionally substituted by $-F$, $-Cl$, $-Br$, $-I$, $-CN$, $-OH$, $-SH$, $-NH_2$, $-CONH_2$, C_1-C_6 alkyl (linear or branched), $-C\equiv C-(CH_2)_n-CH_3$, C_1-C_6 -alkoxy, C_1-C_6 -alkylthio, C_1-C_6 -haloalkyloxy, and/or C_1-C_6 partially or fully halogenated alkyl (C_1-C_6 -alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C_1-C_6 -alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C_1-C_6 -haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C_1-C_6 -haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched), $-F$, $-Cl$, $-Br$, $-I$, $-COOH$, $-NH_2$,



each R_2 is independently selected from $-F$, $-Cl$, $-Br$, $-I$, $-CN$, $-OH$, $-SH$, NH_2 , C_1-C_6 alkyl (linear or branched), C_1-C_6 -alkoxy, C_1-C_6 -alkylthio, C_1-C_6 -haloalkyloxy, partially or fully halogenated C_1-C_6 alkyl (C_1-C_6 -alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C_1-C_6 -alkylthio denotes

an S-alkyl group wherein the alkyl group is linear or branched, C₁ – C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁ – C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),

R₃ is – H or –(R₁)_l–(X_a)_l–(CH₂)_n–(X_b)_l–(CH₂)_n–(Y)_l–R₁,

R₄ is – H or –(R₁)_l–(Z)_l–(CH₂)_n–(X_b)_l–(CH₂)_n–(Y)_l–R₁

immobilized on a support material.

2. The medium according to claim 1, wherein at least one of the compounds 4-[4-(4-fluoro-phenyl)-5-pyridine-4-yl-1*H*-imidazole-2-yl]-benzylamine, 2-[4-(2-Aminoethoxy)-phenylamino]-6-(2,6-dichloro-phenyl)-8-methyl-8*H*-pyrido[2,3-*d*]pyrimidine-7-one, 2-[1-(3-aminopropyl)-1*H*-indole-3-yl]maleimide, 3-[1-(3-Aminopropyl)-1*H*-indol-3-yl]-3-(1*H*-indol-3-yl)-maleinimide, 3-[1-(3-Aminopropyl)-1*H*-indol-3-yl]-4-(1-methyl-1*H*-indol-3-yl)maleinimide, 3-(8-Aminomethyl-6,7,8,9-tetrahydropyrido[1,2-*a*]-indol-10-yl)-4-(1-methyl-1*H*-indol-3-yl)-maleinimide, [6-(3-Amino-propoxy)-7-methoxy-quinazolin-4-yl]-(3-chloro-phenyl)-amine, 6-(3-Amino-propoxy)-7-methoxy-quinazolin-4-yl]-(3-chloro-4-fluoro-phenyl)-amine, 6-(3-Amino-propoxy)-7-methoxy-quinazolin-4-yl]-(3-bromo-phenyl)-amine and 4-[4-(4-Amino-butyl)-piperazin-1-yl-methyl]-*N*-[4-methyl-3-(4-pyridin-3-yl-pyrimidin-2-ylamino)-phenyl]-benzamide is immobilized on the support material.

3. The medium according to claim 1 or 2, wherein the compounds are covalently bound to the support material.

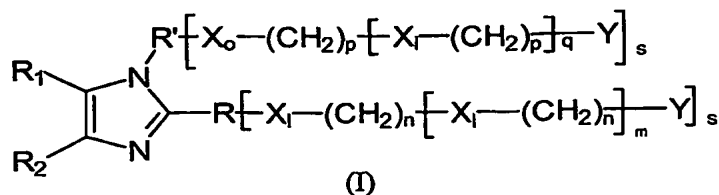
4. The medium according to one of the preceding claims, wherein the support material comprises agarose.

5. The medium according to claim 4, wherein the agarose is a modified agarose material.

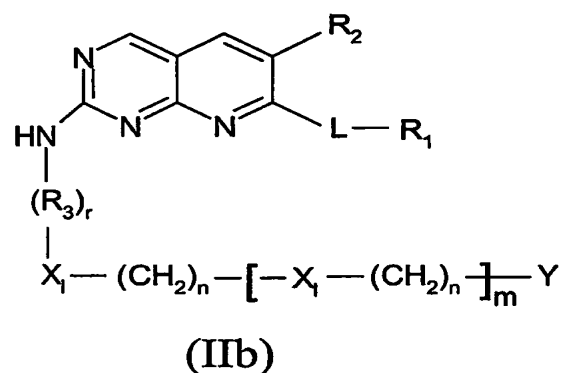
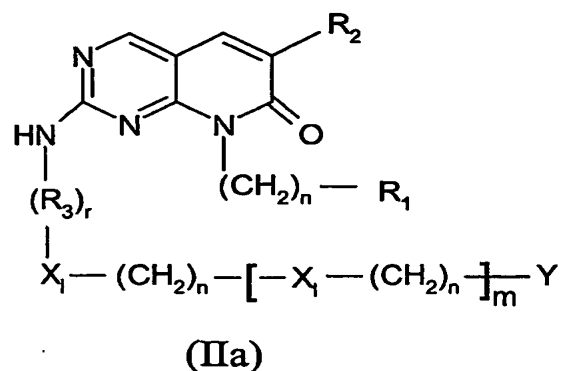
6. The medium according to one of the preceding claims, wherein the support material comprises ferro- or ferrimagnetic particles.

7. The medium according to claim 6, wherein the ferro- or ferrimagnetic particles comprise glass or plastic.
8. The medium according to claim 6 or 7, wherein the ferro- or ferrimagnetic particles are porous.
9. The medium according to claim 8, wherein the ferro- or ferrimagnetic particles have a surface area of about 190 g/m² or greater, determined according the BET method.
10. The medium according to one of claims 6 to 9, wherein the ferro- or ferrimagnetic particles comprise about 30 to 50 % by weight of Fe₃O₄ and about 50 to 70 % by weight of SiO₂.
11. The medium according to one of claims 6 to 10, wherein the average size of the ferro- or ferrimagnetic particles is from 5 to 25 µm in diameter.
12. The medium according to one of the preceding claims, wherein the pool of proteins is a proteome, a cell lysate or a tissue lysate.
13. The medium according to one of the preceding claims, wherein the ATP binding protein is a protein kinase.
14. A method for enriching, purifying or depleting at least one ATP binding protein from a pool of proteins containing at least one ATP binding protein, the method comprising the following steps:

- a) immobilizing at least one compound of the general formula I



formulas IIa and IIb (compound class B)



5

wherein

each L is independently selected from -NH-CO-NH- , $\text{-NH-SO}_2\text{-}$, or -NH-CS-NH ,

each X is independently selected from $\text{-CH}_2\text{-}$, -NH- , -O- , -S- ,



10

each Y is independently selected from -NH_2 , -NHR_1 , -OH , -SH or $\text{-SO(CH}_3\text{)}$,

each l is independently selected to be 0 or 1,

each m is independently selected to be an integer from 0 to 10,

each n is independently selected to be an integer from 0 to 10,

15

each o is independently selected to be 0 or 1,

each p is independently selected to be an integer from 0 to 10,

each q is independently selected to be an integer from 0 to 10,

each r is independently selected to be an integer from 0 to 2,

R and R' are independently of each other -H,



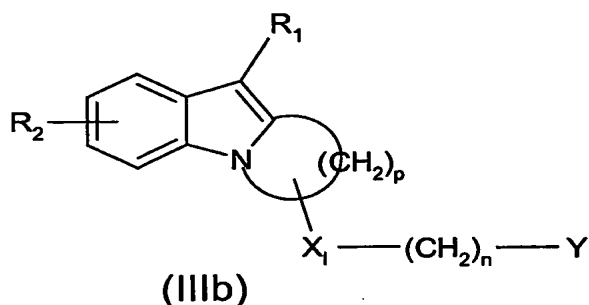
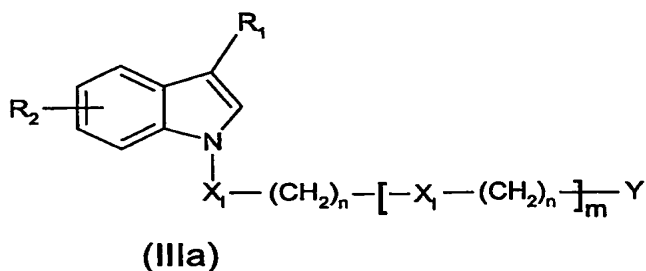
and each s is independently selected to be 0 or 1, with the proviso that s = 0 if R or R' is H,

each R₁ is independently selected from -H, C₁ - C₆ alkyl (linear or branched), bicyclo[3.3.1]heptanyl, or an unsubstituted or partially or fully substituted C₃ - C₈ cycloalkyl, aryl, pyridinyl or pyrimidinyl, substituted by -F, -Cl, -Br, -I, -CN, -OH, -SH, -NH₂, -NHCHR₂R₂, C₁-C₆-alkoxy, C₁ - C₆ -alkylthio, C₁ - C₆ -haloalkyloxy, partially or fully halogenated C₁-C₆ alkyl and/or -X₁-(CH₂)_n-Y (C₁ - C₆-alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C₁ - C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C₁ - C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁ - C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),

each R₂ is independently selected from -H, C₁ - C₆ alkyl (linear or branched), an unsubstituted or partially or fully substituted aryl, substituted by -F, -Cl, -Br, -I, -CN, -OH, -SH, -NH₂, C₁ - C₆ alkyl (linear or branched), C₁ - C₆-alkoxy, C₁ - C₆ -alkylthio, C₁ - C₆ -haloalkyloxy, and/or C₁-C₆ partially or fully halogenated alkyl (C₁ - C₆-alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C₁ - C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C₁ - C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁ - C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched), and

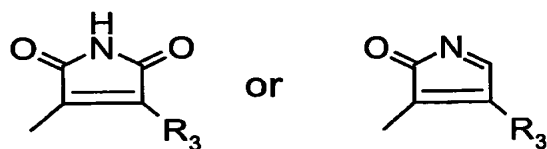
each R₃ is independently selected from X, an unsubstituted or partially or fully substituted aryl, pyridinyl or pyrimidinyl, substituted by -F, -Cl, -Br, -I, -CN, -OH, -SH, -NH₂, -NHCHR₁R₁, C₁ - C₆-alkoxy, C₁ - C₆ -alkylthio, C₁ - C₆ -haloalkyloxy, and/or partially or fully halogenated C₁-C₆ alkyl (C₁ - C₆-alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C₁ - C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C₁ - C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁ - C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),

formulas IIIa and IIIb (compound class C)



wherein

each R_1 is independently selected from



each R_3 is independently selected from -indolyl, N- ($C_1 - C_6$ alkyl) -indolyl (alkyl is linear or branched), $-NHR_1'$,

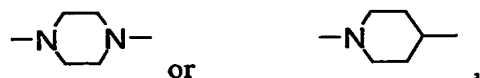
$-S-R_1'$, or $-O-R_1'$,

R_1' is $-H$, $C_1 - C_6$ alkyl (linear or branched) or aryl,

each R_2 is independently selected from $-H$, $-F$, $-Cl$, $-Br$, $-I$, $-CN$, $-OH$, $-SH$, $-NH_2$, $C_1 - C_6$ -alkyl (linear or branched), $C_1 - C_6$ -alkoxy, $C_1 - C_6$ -alkylthio, $C_1 - C_6$ -haloalkoxy, and/or $C_1 - C_6$ partially or fully halogenated alkyl ($C_1 - C_6$ -alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, $C_1 - C_6$ -alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, $C_1 - C_6$ -haloalkoxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or

branched, C₁ – C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),

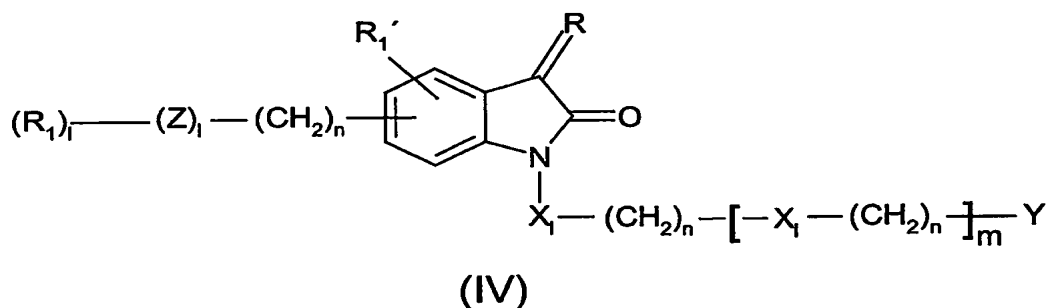
each X is independently selected from –CH₂–, –NH–, –O–, –S–,



- 5 each Y is independently selected from –NH₂, –NHR₁, –OH, –SH or –SO(CH₃),
 each l is independently selected to be 0 or 1,
 m is an integer from 0 to 10,
 each n is independently selected to be an integer from 0 to 10,
 p is an integer from 2 to 6

10

formula IV (compound class D)



15

wherein

each X is independently selected from –CH₂–, –NH–, –O–, –S–,

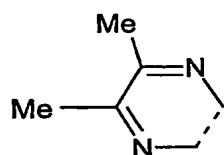


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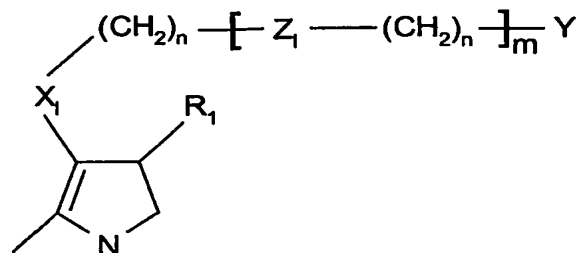
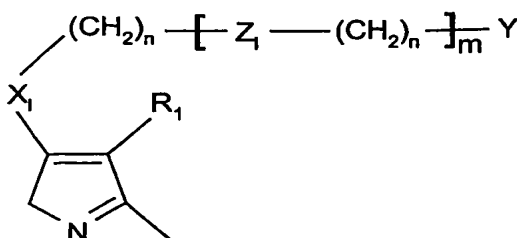
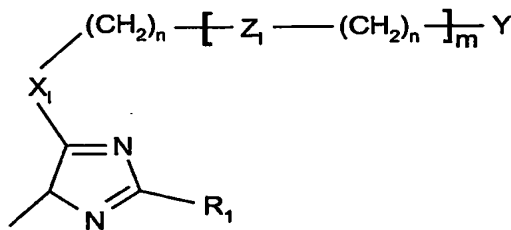
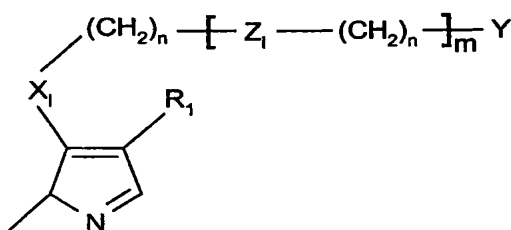
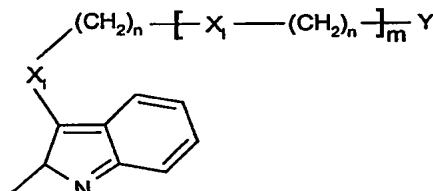
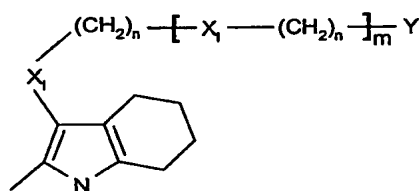
each Y is independently selected from –NH₂, –NHR₁, –OH, –SH or –SO(CH₃),
 Z is –SO₂–NR₁R₁, –CO, –O–CO–, –NH–CO, –COO–, –CO–NH, –OCH₂–,
 –SCH₂–,

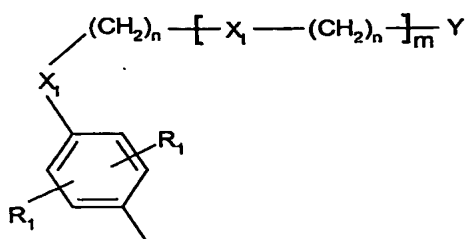
each l is independently selected to be 0 or 1,
 m is an integer from 0 to 10,
 each n is independently selected to be an integer from 0 to 10,
 R is –CR₁L, –N–NH–L

each R_1 is independently selected from $-H$, $C_1 - C_6$ alkyl (linear or branched), ,
 unsubstituted or partially or fully substituted aryl, pyridinyl, pyrimidinyl, $C_3 - C_8$
 cycloalkyl substituted by $-F$, $-Cl$, $-Br$, $-I$, $-CN$, $-OH$, $-SH$, NH_2 , $C_1 - C_6$ -
 alkoxy, $C_1 - C_6$ -alkylthio, $C_1 - C_6$ -haloalkoxy, and/or $C_1 - C_6$ partially or fully
 5 halogenated alkyl ($C_1 - C_6$ -alkoxy denotes an O-alkyl group, $C_1 - C_6$ -alkylthio denotes
 an S-alkyl group, $C_1 - C_6$ -haloalkoxy denotes an halogen-alkyl-O group, $C_1 - C_6$ -
 haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or
 branched), $-F$, $-Cl$, $-Br$, $-I$, $-COOH$, $-(CH_2)_n-OH$, oxazolyl, thiazolyl,
 thiophenyl, pyrrolyl, furanyl, imidazolyl, pyrazolyl, pyridinyl, pyrimidinyl,
 10 R_1' is independently selected from H or R_1 and R_1' may form together the following
 substituted ringsystem

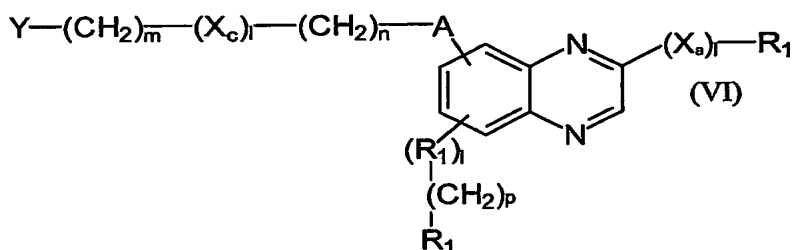
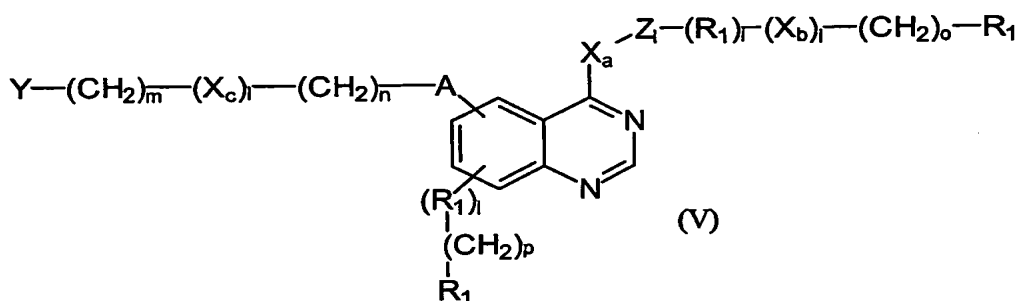


L is



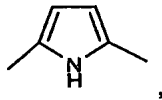
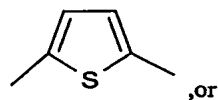
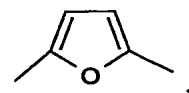
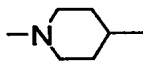
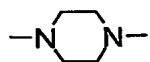


formulas V and VI (compound class E and F)



wherein

A, X_a, X_b, and X_c, are independently selected to be Z, -CH₂-, -NH-, -O-, -S-,



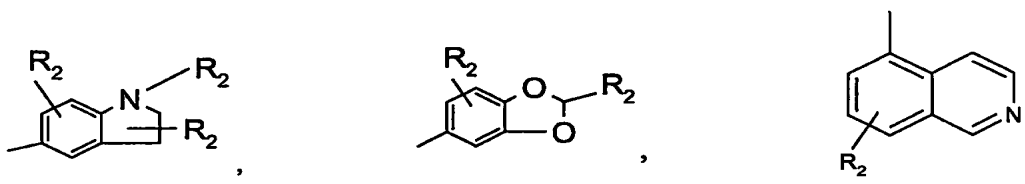
each Y is independently -NH₂, -NHR₁, -OH, -SH or -SO(CH₃),

each Z is independently selected from -SO₂-NR₁-, -CO-, -O-CO-, -NH-CO-, -COO-, -CO-NH-, -CS-NH-, -OCH₂-, -SCH₂-, or -NH-CO-NH-,

each l is independently selected to be 0 or 1,

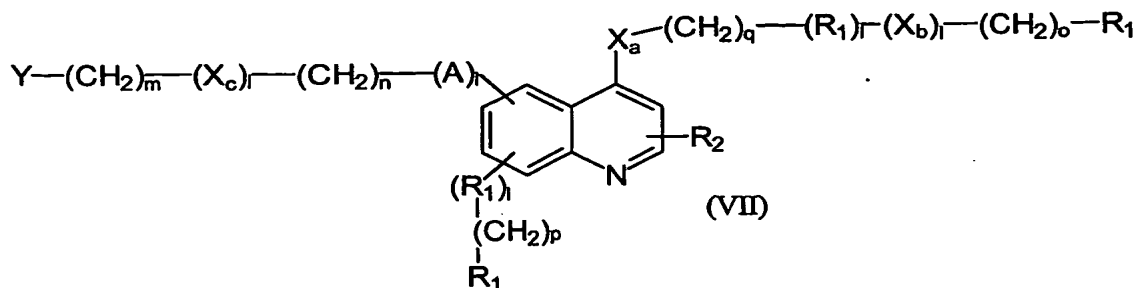
each m is independently selected to be an integer from 0 to 10,

each n is independently selected to be an integer from 0 to 10,
 each o is independently selected to be an integer from 0 to 10,
 each p is independently selected to be an integer from 0 to 10,
 each R₁ is independently selected from -H, -O-, C₁-C₆ alkyl (linear or branched),
 5 C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkyloxy, C₁-C₆ partially or fully
 halogenated alkyl, unsubstituted or partially or fully substituted C₃-C₈ cycloalkyl, an
 unsubstituted or partially or fully substituted aryl, wherein the cycloalkyl and the aryl
 are optionally substituted by -F, -Cl, -Br, -I, -CN, -OH, -SH, -NH₂, -
 CONH₂, C₁-C₆ alkyl (linear or branched), -C≡C-(CH₂)_n-CH₃, C₁-C₆-alkoxy,
 10 C₁-C₆-alkylthio, C₁-C₆-haloalkyloxy, and/or C₁-C₆ partially or fully halogenated
 alkyl (C₁-C₆-alkoxy denotes an O-alkyl group wherein the alkyl group is linear or
 branched, C₁-C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is
 linear or branched, C₁-C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein
 the alkyl group is linear or branched, C₁-C₆-haloalkyl denotes an halogen-alkyl
 15 group wherein the alkyl group is linear or branched),

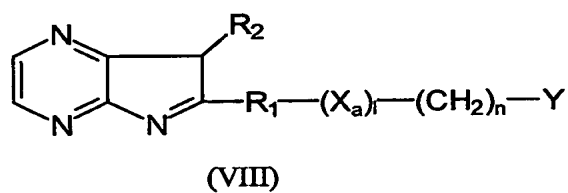


each R₂ is independently selected from -F, -Cl, -Br, -I, -CN, -OH, -SH,
 NH₂, C₁-C₆ alkyl (linear or branched), C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-
 20 C₆-haloalkyloxy, partially or fully halogenated C₁-C₆ alkyl (C₁-C₆-alkoxy denotes an
 O-alkyl group wherein the alkyl group is linear or branched, C₁-C₆-alkylthio denotes
 an S-alkyl group wherein the alkyl group is linear or branched, C₁-C₆-haloalkyloxy
 denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁-
 C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or
 25 branched),

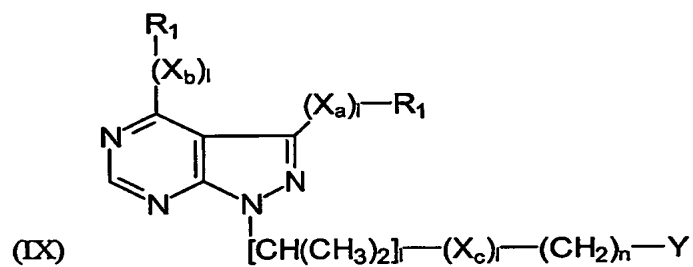
formula VII (compound class G)



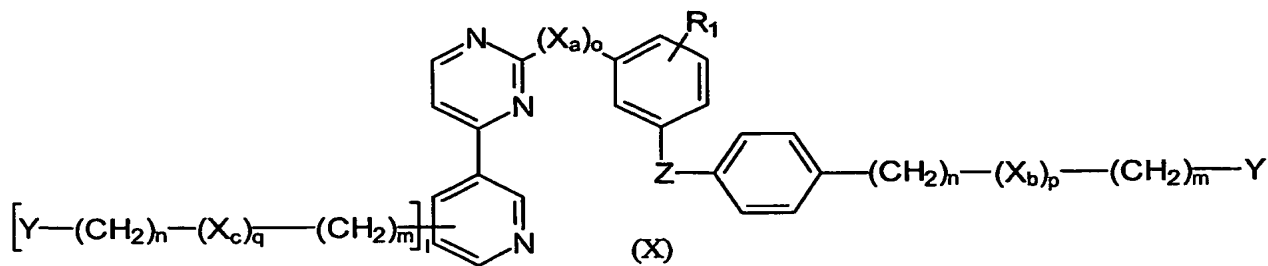
, formula VIII (compound class H)



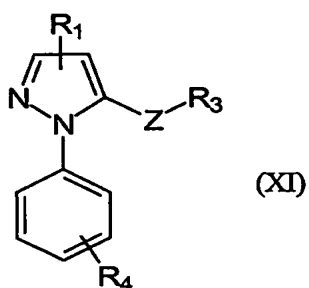
, formula IX (compound class I)



, formula X (compound class J)

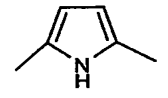
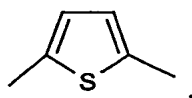
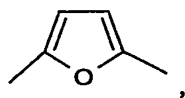
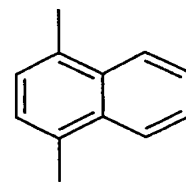
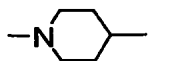
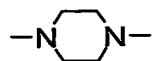


or formula XI (compound class K)



wherein

A, X_a, X_b, and X_c are independently selected from Z, -CH₂-, -NH-, -O-, -S-,



25 each Y is independently selected from -H, -NH₂, -NHR₁, -OH, -SH or -SO(CH₃),

each Z is independently selected from -SO₂-NR₁-, -CO-, -O-CO-, -NH-CO-, -COO-, -CO-NH-, -OCH₂-, -SCH₂-, -NH-CO-NH-,

30 each l is independently selected to be 0 or 1,

each m is independently selected to be an integer from 0 to 10,

each n is an integer independently selected from 0 to 10,

each of o, p, q is an integer independently selected from 0 to 10,

each R₁ is independently selected from -H, C₁-C₆ alkyl (linear or branched), C₁-

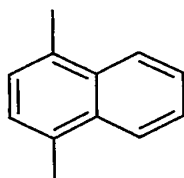
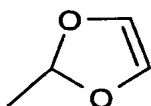
C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkyloxy, C₁-C₆ partially or fully
 5 halogenated alkyl, unsubstituted or substituted C₃-C₈ cycloalkyl, an unsubstituted or
 partially or fully substituted aryl, wherein the cycloalkyl and the aryl are optionally

substituted by -F, -Cl, -Br, -I, -CN, -OH, -SH, -NH₂, -CONH₂, C₁-
 C₆ alkyl (linear or branched), -C≡C-(CH₂)_n-CH₃, C₁-C₆-alkoxy, C₁-C₆-

alkylthio, C₁-C₆-haloalkyloxy, and/or C₁-C₆ partially or fully halogenated alkyl
 10 (C₁-C₆-alkoxy denotes an O-alkyl group wherein the alkyl group is linear or
 branched, C₁-C₆-alkylthio denotes an S-alkyl group wherein the alkyl group is linear

or branched, C₁-C₆-haloalkyloxy denotes an halogen-alkyl-O group wherein the
 alkyl group is linear or branched, C₁-C₆-haloalkyl denotes an halogen-alkyl group

wherein the alkyl group is linear or branched), -F, -Cl, -Br, -I, -COOH, -NH₂,
 15



each R₂ is independently selected from -F, -Cl, -Br, -I, -CN, -OH, -SH,
 NH₂, C₁-C₆ alkyl (linear or branched), C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-
 C₆-haloalkyloxy, partially or fully halogenated C₁-C₆ alkyl (C₁-C₆-alkoxy denotes an
 20 O-alkyl group wherein the alkyl group is linear or branched, C₁-C₆-alkylthio denotes
 an S-alkyl group wherein the alkyl group is linear or branched, C₁-C₆-haloalkyloxy
 denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C₁-
 C₆-haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or
 branched),

25 R₃ is -H or -(R₁)_l-(X_a)_l-(CH₂)_n-(X_b)_l-(CH₂)_n-(Y)_l-R₁,

R₄ is -H or -(R₁)_l-(Z)_l-(CH₂)_n-(X_b)_l-(CH₂)_n-(Y)_l-R₁

on a support material;

- b) bringing the pool of proteins containing at least one protein kinase into contact with at least one of the compounds immobilized on the support material; and
- c) separating the proteins not bound to the at least one compound immobilized on the support material from the at least one protein kinase bound to the at least one compound immobilized on the support material.

15. The method according claim 14, wherein the at least one compound immobilized on the support material is 4-[4-(4-fluoro-phenyl)-5-pyridine-4-yl-1*H*-imidazole-2-yl]-benzylamine, 2-[4-(2-Amino-ethoxy)-phenylamino]-6-(2,6-dichloro-phenyl)-8-methyl-8*H*-pyrido[2,3-*d*]pyrimidine-7-one, 2-[1-(3-aminopropyl)-1*H*-indole-3-yl]maleimide, 3-[1-(3-Aminopropyl)-1*H*-indol-3-yl]-3-(1*H*-indol-3-yl)-maleinmide, 3-[1-(3-Aminopropyl)-1*H*-indol-3-yl]-4-(1-methyl-1*H*-indol-3-yl)maleinimide, 3-(8-Aminomethyl-6,7,8,9-tetrahydropyrido-[1,2-*a*]-indol-10-yl)-4-(1-methyl-1*H*-indol-3-yl)-maleinmide, [6-(3-Amino-propoxy)-7-methoxy-quinazolin-4-yl]-(3-chloro-phenyl)-amine, 6-(3-Amino-propoxy)-7-methoxy-quinazolin-4-yl]-(3-chloro-4-fluoro-phenyl)-amine, 6-(3-Amino-propoxy)-7-methoxy-quinazolin-4-yl]-(3-bromo-phenyl)-amine and 4-[4-(4-Amino-butyl)-piperazin-1-yl-methyl]-*N*-[4-methyl-3-(4-pyridin-3-yl-pyrimidin-2-ylamino)-phenyl]-benzamide.

16. The method according to claim 14 or 15, further comprising a step:

- d) releasing the at least one protein kinase bound to the at least one compound immobilized on the support material from the at least one of said compounds.

17. The method according to claim 16, further comprising a step:

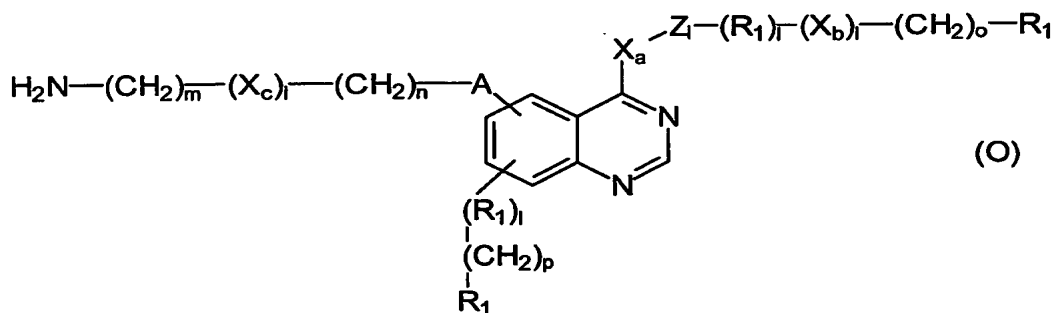
- e) collecting the released at least one protein kinase.

18. The method according to one of claims 14 to 17, wherein the support material comprises agarose.

19. The method according to claim 18, wherein the agarose is a modified agarose material.

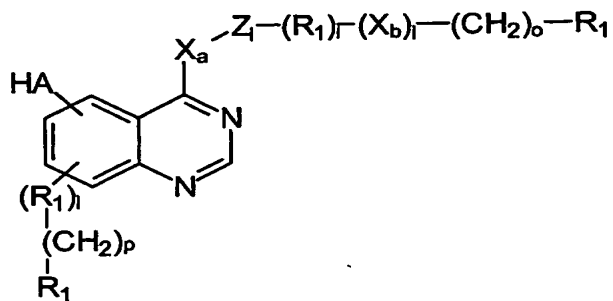
20. The method according to one of claims 14 to 17, wherein the support material comprises ferro- or ferrimagnetic particles.
21. The method according to one of claims 14 to 20, wherein in step c) the separating of the proteins not bound to the at least one compound immobilized on the support material from the at least one ATP binding protein bound to the at least one compound immobilized on the support material is effected by washing with a buffer containing 5 to 500 mM Hepes pH 6.5-8.5 or 5 to 500 mM Tris-HCl pH 6.8 to 9.0, 0 to 1000 mM NaCl, 0.0 to 5% Triton X-100, 0 to 500 mM EDTA, and 0 to 200 mM EGTA.
22. The method according to claim 21, wherein the buffer contains 20 mM Hepes/NaOH pH 7.5, 150 mM NaCl, 0.25% Triton X-100, 1 mM EDTA, and 1 mM EGTA.
23. The method according to one of claims 16 to 22, wherein in step d) the releasing of the at least one protein kinase bound to the at least one compound immobilized on the support material is effected by washing with a buffer containing 5 to 500 mM Hepes pH 6.5-8.5 or 5 to 500 mM Tris-HCl pH 6.8 to 9.0, 0 to 1000 mM NaCl, 0.0 to 5.0% Triton X-100, 0 to 500 mM EDTA, 0 to 200 mM EGTA, 1 to 100 mM ATP, 1 to 200 mM MgCl₂ and 0.1 to 10 mM of at least one of the compounds immobilized on the support material.
24. The method according to claim 23, wherein the buffer contains 20 mM Hepes pH 7.5, 150 mM NaCl, 0.25% Triton X-100, 1 mM EDTA, 1 mM EGTA, 10 mM ATP, 20mM MgCl₂ and 1 mM of at least one of the compounds immobilized on the support material.
25. The method according to one of claims 14 to 24, wherein the pool of proteins is a proteome, cell lysate or tissue lysate.
26. The method according to one of claims 14 to 25, wherein the ATP binding protein is a protein kinase.
27. The method according to one of claims 14 to 26, wherein the pool of proteins contains 0.5 to 5 M, preferably 0.5 to 3 M, and more preferably 0.75 to 2 M of a salt.

28. The method according to claim 27, wherein the salt is an alkali metal salt.
29. The method according to claim 28, wherein the alkali metal salt is NaCl.
30. The method according to one of claims 14 to 29, wherein the at least one ATP binding protein is enriched at least 100-fold from the pool of proteins.
31. The method according to claim 30, wherein the at least one ATP binding protein is enriched between 100- and 1000-fold.
32. The method according to one of claims 28 or 29, wherein the at least one ATP binding protein is enriched at least 10^4 -fold and preferably up to 10^6 -fold.
33. Kit comprising a medium according to one of claims 1 to 13.
34. Kit according to claim 33, further comprising at least one buffer according to one of claims 21 to 24.
35. Method of making a quinazoline compound of the general formula (O) or a salt thereof:



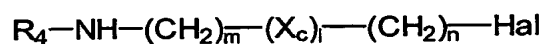
the method comprising the step (A):

reacting a compound with the general formula (Φ)



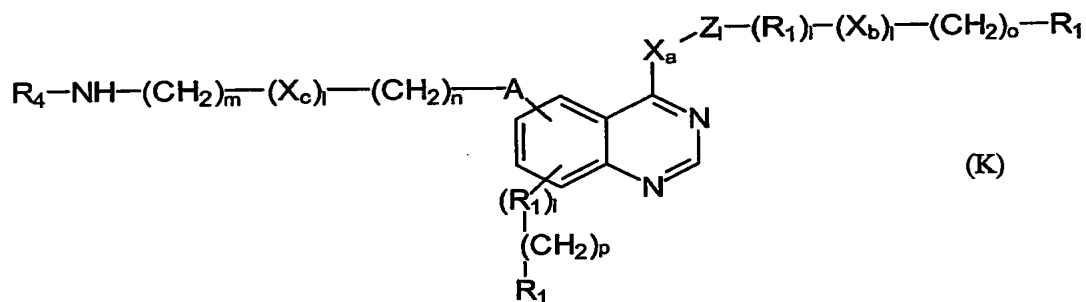
(Φ)

10 with a compound of the general formula (9)



(9)

15 to give compound (K)



(K)

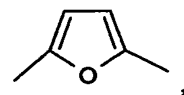
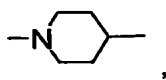
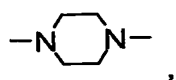
25

wherein the reaction is carried out in the presence of a base and an inert solvent,
and wherein

A is -O-, -S-, -NH-

30 Hal is -Cl, -Br, or -I;

Xa, Xb, and Xc are independently selected from Z, -CH2-, -NH-, -O-, -S-,

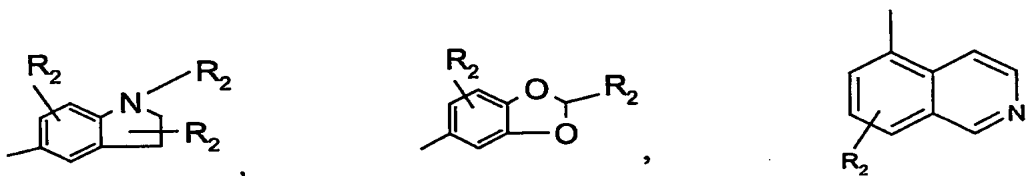




Z is $-\text{SO}_2-\text{NR}_1-$, $-\text{CO}-$, $-\text{O}-\text{CO}-$, $-\text{NH}-\text{CO}-$, $-\text{COO}-$, $-\text{CO}-\text{NH}-$, $-\text{CS}-\text{NH}-$, $-\text{OCH}_2-$, $-\text{SCH}_2-$, or $-\text{NH}-\text{CO}-\text{NH}-$,

l is independently selected for each moiety to be 0 or 1,

- 5 each of m, n, o, and p is an integer independently selected for each moiety from 0 to 10
- R_1 is independently selected from $-\text{H}$, $-\text{O}-$, C_1-C_6 alkyl (linear or branched), C_1-C_6 -alkoxy, C_1-C_6 -alkylthio, C_1-C_6 -haloalkyloxy, C_1-C_6 partially or fully halogenated alkyl, unsubstituted or partially or fully substituted C_3-C_8 cycloalkyl, an unsubstituted or partially or fully substituted aryl, wherein the cycloalkyl and the aryl are optionally
- 10 substituted by $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{CN}$, $-\text{OH}$, $-\text{SH}$, $-\text{NH}_2$, $-\text{CONH}_2$, C_1-C_6 alkyl (linear or branched), $-\text{C}\equiv\text{C}-(\text{CH}_2)_n-\text{CH}_3$, C_1-C_6 -alkoxy, C_1-C_6 -alkylthio, C_1-C_6 -haloalkyloxy, and/or C_1-C_6 partially or fully halogenated alkyl (C_1-C_6 -alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C_1-C_6 -alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C_1-C_6 -haloalkyloxy denotes an
- 15 halogen-alkyl-O group wherein the alkyl group is linear or branched, C_1-C_6 -haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),



- R_2 is $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{CN}$, $-\text{OH}$, $-\text{SH}$, NH_2 , C_1-C_6 alkyl (linear or branched),
- 20 C_1-C_6 -alkoxy, C_1-C_6 -alkylthio, C_1-C_6 -haloalkyloxy, partially or fully halogenated C_1-C_6 alkyl (C_1-C_6 -alkoxy denotes an O-alkyl group, C_1-C_6 -alkylthio denotes an S-alkyl group, C_1-C_6 -haloalkyloxy denotes an halogen-alkyl-O group, C_1-C_6 -haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched),
- 25 R_4 is a leaving group, selected from the group consisting of t-butyloxycarbonyl (BOC), fluorene-9-ylmethoxycarbonyl (Fmoc) or benzyloxycarbonyl and further comprising as step (B):

cleaving off the leaving group R₄ to give compound (O) or a salt thereof.

36. The method according to claim 35, wherein the base used in reaction step (A) is K₂CO₃ or Na₂CO₃ and the inert solvent is selected from the group consisting of acetonitrile, acetone, toluene, THF or DMF.

37. The method according to claim 35 or 36, wherein reaction step (A) is carried out under heating, preferably at a temperature at which the inert solvent refluxes.

38. The method according to any one of claims 35 to 37, wherein in compounds (Φ), (Θ) and (K),

l is 0, o is 0, and p is 0

m is 0

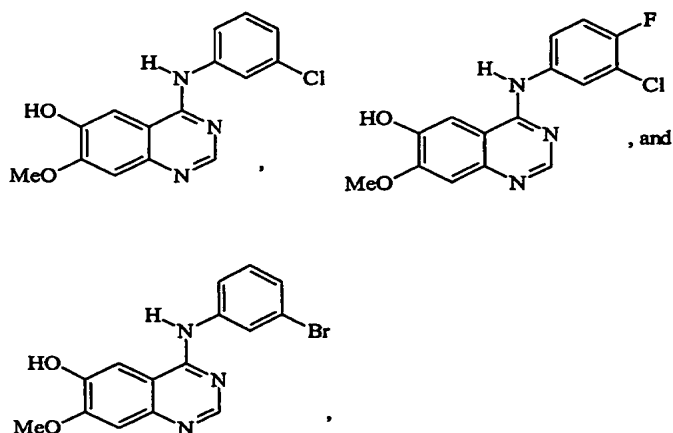
n is an integer selected from 1 to 8, preferably from 2 to 6, and most preferably is 4,

X is -NH-,

R₃ is C₁ – C₆ alkyl (linear or branched), and

R₁ is an unsubstituted or partially or fully substituted aryl, wherein the aryl is substituted by at least one of the substituents comprised in the group consisting of -F, -Cl, -Br, -I, -CN, -OH, -SH-, C₁ – C₆ -alkylthio, and benzyloxy-.

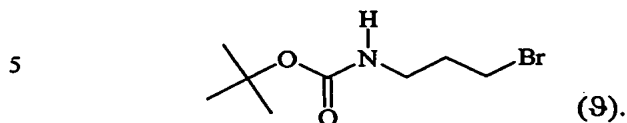
39. The method according to any one of claims 35 to 38, wherein compound (Φ) is selected from the group consisting of



(Φ)

and

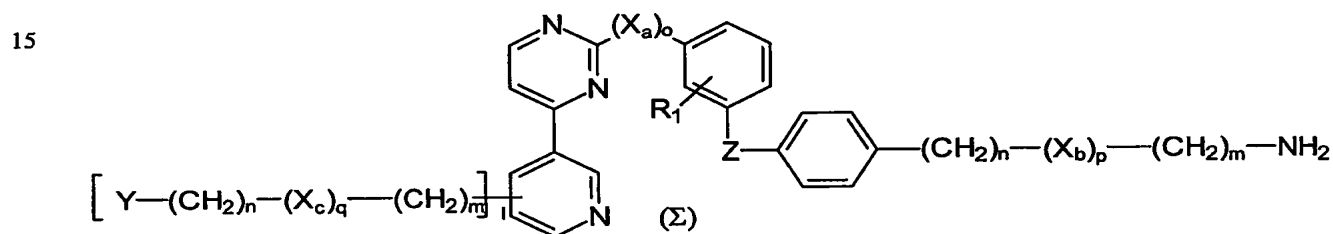
compound (9) is



40. The method according to any one of claims 35 to 39, wherein the leaving group R_4 is removed from compound (K) by contacting compound (K) with hydrochloric acid as the protonic acid, preferably by contacting compound (K) with a solution of hydrochloric saturated ethylacetate.

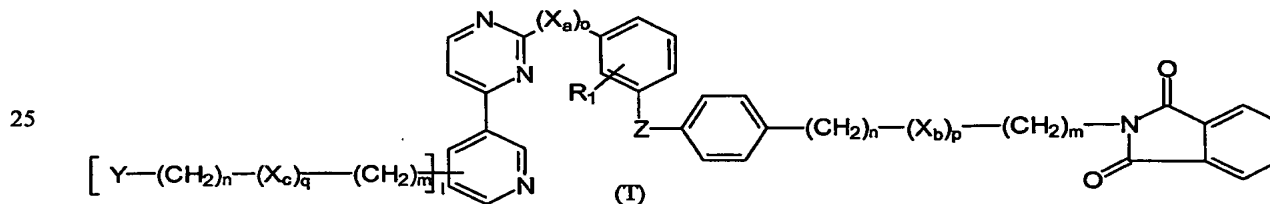
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41. A method of making a compound with the general formula (Σ)



20 comprising the steps (A):

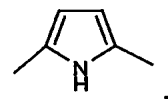
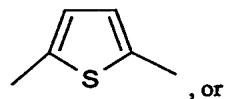
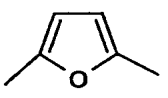
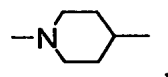
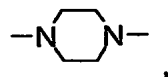
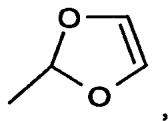
reacting a compound of the general formula (T)



with hydrazine in a protic solvent and subsequently reacting the crude reaction product with an aqueous solution of an protonic acid, wherein in

30 compounds (Σ) and (T)

X_a , X_b and X_c are independently selected from the group consisting of Z, $-\text{CH}_2-$, $-\text{NH}-$, $-\text{O}-$, $-\text{S}-$,



Y is $-\text{NH}_2$, $-\text{NHR}_1$, $-\text{OH}$, $-\text{SH}$ or $-\text{SO}(\text{CH}_3)$,

Z is $-\text{SO}_2-\text{NR}_1$, $-\text{CO}-$, $-\text{O}-\text{CO}-$, $-\text{NH}-\text{CO}$, $-\text{COO}-$, $-\text{CO}-\text{NH}-$, $-\text{OCH}_2-$, or $-\text{SCH}_2-$,

l is independently selected to be 0 or 1,

5 m is an integer independently selected from 0 to 10,

n is an integer independently selected from 0 to 10,

o is an integer independently selected from 0 to 10,

p is an integer independently selected from 0 to 10,

q is an integer independently selected from 0 to 10, and

10 R_1 is independently selected from $-\text{H}$, $\text{C}_1 - \text{C}_6$ alkyl (linear or branched), $\text{C}_1 - \text{C}_6$ -alkoxy, $\text{C}_1 - \text{C}_6$ -alkylthio, $\text{C}_1 - \text{C}_6$ -haloalkyloxy, $\text{C}_1 - \text{C}_6$ partially or fully halogenated alkyl, unsubstituted or substituted $\text{C}_3 - \text{C}_8$ cycloalkyl, an unsubstituted or partially or fully substituted aryl, wherein the cycloalkyl and the aryl are optionally substituted by $-\text{F}$, $-\text{Cl}$, $-\text{Br}$, $-\text{I}$, $-\text{CN}$, $-\text{OH}$, $-\text{SH}$, $-\text{NH}_2$, $-\text{CONH}_2$, $\text{C}_1 - \text{C}_6$ alkyl (linear or branched), $-$

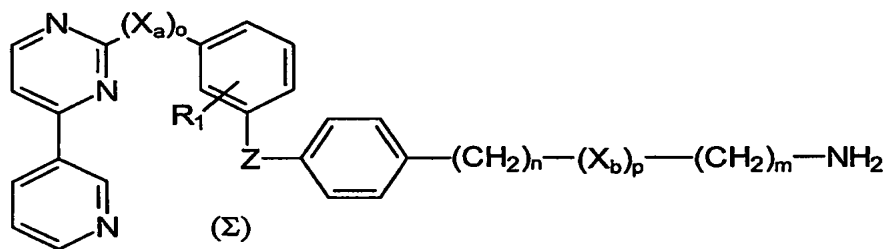
$C\equiv C-(CH_2)_n-CH_3$, C_1-C_6 -alkoxy, C_1-C_6 -alkylthio, C_1-C_6 -haloalkyloxy, and/or C_1-C_6 partially or fully halogenated alkyl (C_1-C_6 -alkoxy denotes an O-alkyl group wherein the alkyl group is linear or branched, C_1-C_6 -alkylthio denotes an S-alkyl group wherein the alkyl group is linear or branched, C_1-C_6 -haloalkyloxy denotes an halogen-alkyl-O group wherein the alkyl group is linear or branched, C_1-C_6 -haloalkyl denotes an halogen-alkyl group wherein the alkyl group is linear or branched), $-F$, $-Cl$, $-Br$, $-I$, $-COOH$, $-NH_2$,



42. The method of claim 41, wherein the protic solvent is selected from the group of alkyl alcohols, preferably from the group consisting of methanol, ethanol, propanol, iso-propanol, n-butanol and iso-butanol, and most preferably is ethanol.

43. The method according to claims 41 or 42, wherein the protonic acid is selected from hydrochloric acid or hydrobromic acid, and preferably is hydrochloric acid.

44. The method according to any one of claims 41 to 43, wherein (Σ) is



and wherein o is 1 and X_a is $-NH-$,

Z is $-CO-NH-$,

R_1 is an alkyl group,

and X_b is:



45. The method according to any one of claims 41 to 44, wherein

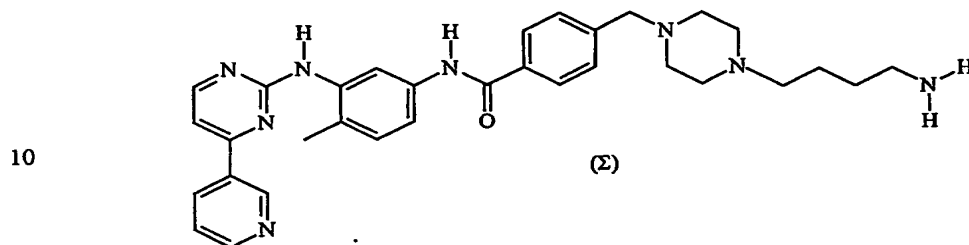
l is 0

m is 0

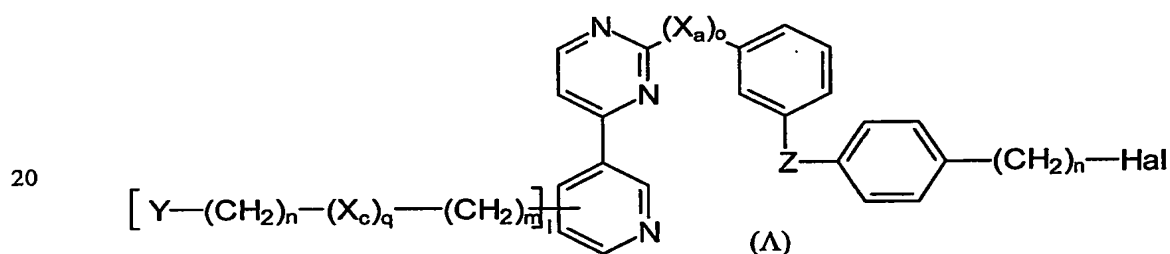
and n is an integer selected from 1 to 6, preferably from 2 to 4 and most preferably is 4.

5

46. The method according to any one of claims 40 to 45, wherein the compound (Σ) is

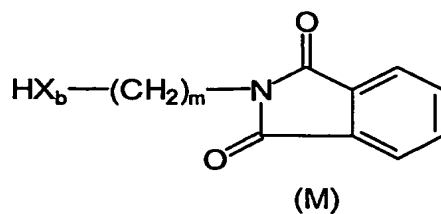


47. The method according to any one of claims 40 to 46, further comprising the step of
15 providing the compound (T) by reaction of compound (Λ) or a salt thereof



with compound (M) or salt thereof

25



30 in the presence of a base,

wherein Hal is a halogen selected, preferably selected from the group consisting of Cl-, Br, and I-, and preferably is Br, and

wherein X_a, X_b and X_c, Y, Z, R₁, l, m, n, o, p, and q have the same meaning as in compounds (T) and (Σ) as defined in claim 41.

48. The method according to claim 47, wherein the base is selected from the group consisting of ammonia, primary amines, especially primary alkyl amines, secondary amines, especially secondary alkylamines or tertiary amines, especially tertiary alkylamines, and preferably is triethylamine.

49. The method according to any one of claims 47 to 48, wherein in compound (A)

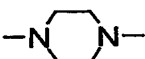
l is 0

X_a is -NH-,

R₁ is a linear or branched C₁-C₆-alkyl, preferably -CH₃,

Z is -NHCO-,

n is an integer from 1 to 8, preferably from 1 to 4, and most preferably is 1, and

X_b is 

50. The method according to any one of claims 41 to 49, wherein the hydrazine is provided in the form of hydrazine hydrate.